

DECnet-RSX User's and Programmer's Minireference Guide

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CONVENTIONS USED IN THIS GUIDE

- [] enclose optional arguments.
- { } indicate that only one of the enclosed options can be used.
- ... indicate that the preceding argument can be repeated.
- (RET) indicates a carriage return.

italicized lowercase words in coding examples and call formats indicate variables for which you must supply actual values.

UPPERCASE LETTERS in coding examples and call formats indicate data that must be typed exactly as shown. (In NCP commands, keywords shown in uppercase can be abbreviated to the first 3 letters.)

INVOKING UTILITIES

4

For details, refer to the *RSX-11 Utilities Manual*. (See exceptions for RMT in the section that follows.)

Invoking a utility:

From MCR: `>utilityname` **RET**

From DCL: `>MCR utilityname` **RET**

To terminate most utilities invoked in this way, type **CTRL Z**.

Issuing a single utility command line:

MCR `>utilityname commandstring` **RET**

MCR>

DCL `>MCR utilityname commandstring` **RET**

DCL>

Invoking and running a utility using an indirect command file:

`>utilityname @filename[/TR]` **RET** (TRace option)

Invoking uninstalled utilities:

>RUN \$utilityname **RET**

RMT Utility

Invoking RMT and connecting to the host node:

For DECnet-11M and DECnet-11M-PLUS:

>RMT **RET**

Host: *hostname* **RET**

or >RMT *hostname* **RET**

For DECnet-11S:

>RUN RMT **RET**

Host: *hostname* **RET**

Entering **CTRL C** causes RMT to prompt for input (RMT ~) and then pass control to the CLI

Disconnecting from the host node:

>EXIT RMT **RET** or >BYE **RET** or >BYE/HOLD **RET**

Refer to Appendix A of the *DECnet-RSX Guide to User Utilities* for QIO functions, subfunctions, restrictions, and status returns for the HT driver.

NCP USER COMMANDS

Keywords (shown in uppercase) can be abbreviated to the first 3 letters. All SHOW commands can be directed to an output file by adding TO *output-filename* at the end of the command. (For detailed command descriptions refer to the *DECnet-RSX Guide to User Utilities*. For a complete listing of all NCP commands and parameters, refer to the *DECnet-RSX System Manager's Guide* and the *DECnet-RSX System Manager's Minireference Guide*.)

Local/remote node information:

SHOW	<div style="display: inline-block; vertical-align: middle;"> <div style="font-size: 4em; vertical-align: middle;">{</div> <div style="display: inline-block; vertical-align: middle;"> NODE <i>node-id</i> EXECUTOR ACTIVE NODES KNOWN NODES ADJACENT NODE SIGNIFICANT NODES </div> <div style="font-size: 4em; vertical-align: middle;">}</div> </div>	[STATUS]
TELL	<div style="display: inline-block; vertical-align: middle;"> <i>routing-node-id</i> SHOW <div style="display: inline-block; vertical-align: middle;"> <div style="font-size: 4em; vertical-align: middle;">{</div> <div style="display: inline-block; vertical-align: middle;"> NODE <i>node-id</i> EXECUTOR ACTIVE NODES KNOWN NODES ADJACENT NODE SIGNIFICANT NODES </div> <div style="font-size: 4em; vertical-align: middle;">}</div> </div> </div>	[STATUS]

Line/circuit information:

SHOW {
ACTIVE LINES
KNOWN LINES
LINE *line-id*
SIGNIFICANT LINES
}

SHOW {
ACTIVE CIRCUITS
KNOWN CIRCUITS
CIRCUIT *circuit-id*
SIGNIFICANT CIRCUITS
}

Alias node names:

SET ALIAS *alias-name* DESTINATION *destination-node*

SHOW {
ALIAS *alias-name*
KNOWN ALIASES
ALL ALIASES
}

CLEAR {
ALIAS *alias-name*
KNOWN ALIASES
}

Assistance in using NCP:

HELP {
{ *command*
{ *component-type* }
}

Note: HELP file must be on LB 1/2

NFT/FTS FILE DESCRIPTOR AND COMMAND FORMATS

For details, refer to the *DECnet-RSX Guide to User Utilities*.

NFT/FTS file descriptor format: *[nodespec::][filespec]*

nodespec *nodename[/userid/password/account]:*
 nodename["userid password account"]:

filespec *device:[ufd]filename.type;version*

If you are using a foreign file specification that cannot be parsed by DECnet-RSX NFT, it must be enclosed in double quotes ("*filespec*"). Refer to this card's section on foreign file formats or to each system's current documentation for correct file formats.

You can insert a hyphen (-) before **RET** to continue a command line onto an additional line. You can insert the hyphen at any point in the command line.

NFT Command Formats

NFT operations are specified by primary switches. Primary switches can be inserted anywhere on a command line. Qualifying switches apply only to each specific input file to which they are appended. When qualifying switch(es) are specified for an output file, the switch(es) become the default for all input file(s) in the command, unless overridden on a per file basis.

In the NFT command formats, **switch** denotes one (or more) of the following optional qualifying switch(es):

- /AS (transfer in ASCII record mode)
- /AX (transfer in either block or record mode based on remote FAL capabilities)
- /BK (transfer in block mode)
- /CO (create output file with contiguous allocation)
- /IM (transfer in image record mode)
- /NV (specify same or latest version number for an output file)
- /PR (set or change a file's protection status)
- /RC (transfer files a record at a time)
- /SP (spool files to a line printer)
- /SU (supercede contents of an existing file)
- /LO (display file names as they are executed)

The Append Operation - /AP (append files to end of existing files)

Format: NFT > outfile infile1[switch][.....infilen[switch]]/AP

Qualifying switches: /AS, /AX, /BK, /IM, /PR, /RC, /SP, /LO

(continued on next page)

The Copy Operation – default (file transfer)

Format: NFT>outfile=infile1[switch][...,infilen[switch]]

Qualifying switches: /AS, /AX, /BK, /CO, /IM, /NV, /PR, /RC, /SP, /SU, /LO

The Delete Operation – /DE (delete file(s))

Format: NFT>filedesc1[...,filedescn]/DE[switch]

Qualifying switch: /LO

The Execute Operation – /EX (execute remote file(s))

Format: NFT>commandfile1[,...,commandfilen]/EX[switch]

Qualifying switch: /LO

The Help Operation – /HE or HELP (list/provide information on subjects)

Format: NFT>/HE or NFT>HELP[subject]

The Identify Operation – /ID (display information on current NFT and NFAR version numbers, type of operating system and file support, DAP buffer size, and optional remote FAL)

Format: NFT>[nodespec::]/ID

The List Directory Operations - /LI, /FU, /BR, /AT (list directory of one or more file(s); see descriptions below)

Format: NFT>[outfile][infile1[,...,infilen]

$\left\{ \begin{array}{l} /LI[:width] \\ /FU[:width] \\ /BR \\ /AT \end{array} \right\}$

The /LI (list) switch lists the name, size, creation date, and optional contiguous and locked indicators for files on a remote node

The /FU (full directory listing) switch lists the name, size, creation date, optional contiguous and locked indicators, owner, protection, date last modified, and revision number for files on a remote node.

The /BR (brief listing) switch lists only the names of files on a remote node

The /AT (attributes listing) switch lists the file organization, record format, and record attributes, as well as the information included in a full (/FU) directory listing.

The Rename Operation - /RE (change name of existing file)

Format: NFT>outfile=infile1[switch][,...,infilen[switch]]/RE

Qualifying switches: /NV, /LO

(continued on next page)

The Set Default Operation - /DF (set/display defaults)

Format: NFT > [defaults]/DF

$$\left[\left\{ \begin{array}{l} \text{:IN} \\ \text{:OUT} \end{array} \right\} \right]$$

The Set Protection Operation - /PR (set/change file protection)

Format: NFT > *filedesc1*/PR[*n*][*/SY:p*][*/OW:p*][*/GR:p*][*/WO:p*][*/FO:ulc*]-RE
 NFT > [...,*filedescn*/PR[*n*][*/SY:p*][*/OW:p*][*/GR:p*][*/WO:p*][*/FO:ulc*]][*switch*]

Qualifying switch: /LO

The Spool Operation - /SP (spool file to line printer)

Format: NFT > [*outfile* -]*infile1*[*switch*][,...,*infilen*[*switch*]]/SP

Qualifying switches: /AS, /AX, /BK, /IM, /NV, /RC, /SU, /LO

The Submit Operation - /SB (copy, submit, and delete a file)

Format: NFT > *outfile* -*commandfile*/SB[*switch*]

Qualifying switches: /AS, /AX, /BK, /IM, /NV, /RC, /LO

FTS Command Formats

FTS operations are specified by primary switches. Primary switches can be inserted anywhere on a command line. Qualifying switches can be specified for input files only and, once inserted in the command, become the default for the rest of the command line, unless overridden.

In the FTS command formats, *switch* denotes one (or more) of the following optional qualifying switch(es).

/AF (execute request after specified time)

Format: FTS *-commandline* /AF[:*day-mnth-yr*] *hr min*

/AS (transfer in ASCII record mode)

/IM (transfer in image record mode)

/LO (log completion messages)

Format: FTS *-/LO[:filespec]*

FTS *-/-LO* or FTS *-/NOLO* (do not log completion messages)

/PR (queue request at specified priority)

Format: FTS *-/PR priority*

/SE (process requests according to input sequence)

Format: FTS *-commandline* /SE

The Append Operation – /AP (append files to end of existing files)

Format: FTS *-outfile infile1[switch][. . .infilen[switch]]/AP*

Qualifying switches: /AF, /AS, /IM, /LO, /PR, /SE

(continued on next page)

The Copy Operation - **default** (file transfer)

Format FTS outfile infile1[switch]...infilen[switch]

Qualifying switches /AF /AS /IM /LO /PR /SE

The Delete Operation - **DE** (delete file(s))

Format A FTS filedesc1[...filedescn] DE[switch]

Format B FTS outfile infile DE[switch] (transfer and delete a file)

Qualifying switches /AF /LO /PR /SE

The Edit Operation - **ED** (inhibit the queuing of requests)

Format FTS /ED

The Execute Operation - **EX** (execute remote file(s))

Format FTS commandfile*[switch]...commandfilen[switch] /EX

Qualifying switches /AF /LO /PR /SE

The Help Operation - /HE or HELP (list/provide information on subjects)

Format: FTS\ /HE or FTS\ HELP[subject]

The Identify Operation - /ID (display current FTS version number)

Format: FTS\ /ID

The Kill Operation - /KI (kill request(s))

Format: FTS\ job /KI or FTS\ nodename:: /KI or FTS\ */KI

The List Operation - /LI (list pending user requests)

Format: FTS\ [nodename::] /LI

The Set Default Operation - /DF (set/display defaults)

Format: FTS\ [defaults] /DF

$$\left[\left\{ \begin{array}{l} \text{:IN} \\ \text{:OUT} \end{array} \right\} \right]$$

(continued on next page)

The Spool Operation - /SP (spool file to line printer)

Format: FTS -[outfile]infile1[switch][.. .infilen[switch]]/SP

Qualifying switches: /AF, /LO, /PR, /SE

The Submit Operation - /SB (copy, submit, and delete a file)

Format: FTS -outfile commandfile[switch]/SB

Qualifying switches: /AF, /LO, /PR, /SE

FOREIGN OPERATING SYSTEM FILE TRANSFER FORMATS

Note: Because system formats are subject to change, it is wise to check current documentation for systems with which you are networking.

File specification formats:

IAS	<i>dev:[ufd]filename.type:version</i>
VAX/VMS	<i>dev:[directory]filename.type:version</i>
RT-11	<i>dev:filename.type</i>
RSTS/E	<i>dev:[ppn]filename.type</i>
TOPS-20	<i>dev:<directory>filename.type version</i>

(continued on next page)

Transfer formats:

- Notes:**
- System output is printed in red.
 - Many systems do not require specification of account.

DECnet-IAS NFT *nodename/userid/password/account outfile infile* RET

DECnet-VAX COPY RET
 From: *nodename"userid password account":infile* RET
 To: *nodename"userid password account" outfile* RET

DECnet-RT R NFT RET
 COPY /ASCII RET
 From? *infile* RET
 To ? *nodename/userid/password/account outfile* RET

DECnet/E R NFT RET
 NFT>COPY *nodename:outfile infile* RET
 Node: *nodename*
 User: *ppn* RET
 Password: *password* RET
 Account: RET

DECnet-20

R NFT RET

NFT > COPY *infile nodename outfile* / User *userid* RET

Password: *password* RET

Account: *account* RET

Examples:

Transfer from VMS to RSX using DECnet-VAX:

\$ COPY RET

\$ From: COPY DBAO: [NIILSON] SAMPLE.TXT RET

\$ To: TEWKS" [200,200] PASS":: RET

File SAMPLE.TXT will be copied to [200,200]SAMPLE.TXT.

Transfer from RSX to VMS using DECnet-VAX:

\$ COPY RET

\$ From: HALDIR" SHEPARD PASS":: SAMPLE.TXT RET

\$ To: EXAMPLE.TXT RET

File SAMPLE.TXT will be copied the local VAX node and be renamed EXAMPLE.TXT.

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MACRO-11 INTERTASK COMMUNICATION MACRO CALLS

Build type macro `label xxx[W]$ parameters flag`

Execute type macro `xxx[W]$E label override-parameters flag`

Stack type macro `xxx[W]$S parameters flag`

These macros are defined in NETLIB.MLB. The wait option (W) and the E and S formats are valid for all of the following macros except CONBSS. For details, refer to the DECnet RSL Programmer's Reference Manual.

Macro	Function Format
ABTS	Abort a logical link. <code>/un {etn} [status] [ast] [out outlen]</code>
ACCS	Accept a logical link connect request. <code>/un {etn} [status] [ast] [mail [mailen] [out outlen]] [NOFLTW]</code>
CLSS	End a task's network operations. <code>[/un] {etn} [status] [ast]</code>

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CONS Request a logical link connection

[lun],[efn],[status],[ast],<conbl,[conblen],[out,outlen],[in,inlen]>[.NOFLOW]

CONB\$\$ Build connect block for CONS macro

[node],[obj],[fmt,<descrip>],[rqid],[<pass>][,accno]

DSC\$ Disconnect a logical link

[lun],[efn],[status],[ast][,<out,outlen>]

GLN\$ Get local node information

[lun],[efn],[status],[ast],<buf,buflen>

GNDS Get data from network data queue

[lun],[efn],[status],[ast], $\left\{ \begin{array}{l} \text{<mail,mlen,>} \\ \text{<mail,mlen,mask>,NT.TYP} \\ \text{.NT.LON} \\ \text{<..mask>,NT.LON} \end{array} \right\}$

OPNS	Access the network <i>[lun],[efn],[status],[ast],[<links.lrp>]</i>
RECS	Receive data over a logical link <i>lun,[efn],[status],[ast],[<buf,buflen>]</i>
REJS	Reject logical link connect request <i>[lun],[efn],[status],[ast],[<mail,[mailen],[out,outlen]>]</i>
SND\$	Send data over a logical link <i>lun,[efn],[status],[ast],[<buf,buflen>]</i>
SPAS	Specify a user AST routine <i>[lun],[efn],[status],[ast],[<addr>]</i>
XMIS	Send interrupt message over a logical link <i>lun,[efn],[status],[ast],[<int,intlen>]</i>

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GNDS completion returns (defined in the NSSYMS macro in NETLIB.MLB):

NT.ABO Network abort
NT.ABT User abort
NT.CON Connect request
NT.DSC User disconnect
NT.INT Interrupt message

MACRO-11 ERROR/COMPLETION CODES

Applicable Standard RSX Codes

These codes are defined in the IOERRS macro in RSXMAC SML which is referenced in the NSSYMS macro in NETLIB MLB

Mnemonic	Decimal Value	Octal Value	Meaning
IS SUC	1	1	The request was successful
IS DAO	2	2	The request was successful but some data was lost
IE BAD	-1	377	Invalid buffer parameter, or data length exceeds 16 bytes
IE SPC	-6	372	Invalid buffer parameters, buffer may not be word aligned, buffer may be outside user address space, or buffer may exceed 8128 bytes
IE WLK	-12	364	Transmission of an interrupt message was attempted before the last one finished
IE DAO	-13	363	Data overrun, unstored data is lost
IE ABO	-15	361	The link was aborted or disconnected (See disconnect and reject reason codes below)
IE PRI	-16	360	The network is not accessed on this LUN

(continued on next page)

IE.RSU	-17	357	Required system resources are not available
IE.ALN	-34	336	The specified LUN is already established
IE.NLN	-37	333	There is no established logical link on the specified LUN
IE.URJ	-73	267	The remote task rejected an attempted connection
IE.NRJ	-74	266	The network rejected an attempted connection (see disconnect and reject reason codes below)
IE.NDA	-78	262	There is no data to return
IE.NNT	-94	242	The issuing task is not a network task. OPNS was not executed successfully

Disconnect and Reject Reason Codes

These codes are defined in the NSSYMS macro in NETLIB.MLB

Symbol Name	Decimal Value	Octal Value	Disconnect Reject Reason
NESRES	1	1	Insufficient network resources
NESNOD	2	2	Unrecognized node name

NESNSR	3	3	Remote node shutting down
NESUOB	4	4	Unrecognized object
NESFMT	5	5	Invalid object name format
NESMLB	6	6	Object too busy
NESABM	8	10	Abort by network management
NESNNF	10	12	Invalid node name format
NESNSL	11	13	Local node shutting down
NESACC	34	42	Access control rejected by remote node or object
NESABO	38	46	On a connect failure. No response from object. On a network logical link abort. Remote node or object failed.
NESCOM	39	47	Node unreachable

CALLS FOR FORTRAN, COBOL, AND BASIC-PLUS-2

FORTRAN	CALL XXXXX (parameters)
COBOL	CALL XXXXX USING parameters
BASIC-PLUS-2	CALL XXXXX BY REF (parameters)

For details, refer to the *DECnet RSL Programmer's Reference Manual*. Note that COBOL parameters are not enclosed in parentheses.

Intertask Communication Calls

These calls are defined in NETFOR.DLB. The wait option can be specified by appending a W to any of the following calls except BACC, BFMT0, BFMT1, and WAITNT (e.g., ABTNTW).

Call	Function	Format
ABTNT	Abort a logical link	<i>link [status] [outsize outmessage]</i>
ACCNT	Accept a logical link connect request	<i>link [status] mailbuf [outsize outmessage]</i>

BACC	Build access control information area <i>[status],tgtblk,[usersz,user],[passwdsz,passwd][,accnosz,accno]</i>
BFMT0	Build a format 0 destination descriptor <i>[status],tgtblk,ndsz,ndname,objtype</i>
BFMT1	Build a format 1 destination descriptor <i>[status],tgtblk,ndsz,ndname,objtype,namesz,name</i>
CLSNT	End a task's network operations <i>[status]</i>
CONNT	Request a logical link connection <i>lun,[status],tgtblk,[outsize,outmessage][,insize,inmessage]</i>
DSCNT	Disconnect a logical link <i>lun,[status][,outsize,outmessage]</i>

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GLNNT	Get local node information <i>[status], buflen, buf</i>
GNDNT	Get data from network data queue <i>[status], type, [mailsz], [mailbuf], [ltonly], [immed], [typmsk]</i>
OPNNT	Access the network <i>[lun], [status], [mstat], [count], [lrp]</i>
RECNT	Receive data over a logical link <i>[lun], [status], insize, indata</i>
REJNT	Reject logical link connect request <i>[status], mailbuf, outsize, outmessage</i>
SNDNT	Send data over a logical link <i>[lun], [status], outsize, outdata</i>

WAITNT

Suspend the calling task

[index].status1...statusn

XMINT

Send interrupt message over a logical link

lun,[status],intsize,intmsg

CMUNT completion returns:

- 1 Connect request
- 2 Interrupt message
- 3 User disconnect
- 4 Network abort
- 5 User abort

Remote File Access Calls

32

Call	Function/Format
ACONFW	Set file access options (<i>lun</i> , <i>status</i> ,[<i>fac</i>],[<i>shr</i>],[<i>top</i>])
ATTNFW	Set extended attributes (<i>lun</i> , <i>status</i> ,[<i>namesize</i>],[<i>name</i>],[<i>atb</i>],[<i>protblk</i>] [<i>owner</i>],[<i>dateblk</i>])
CLSNFW	Close a file (<i>lun</i> , <i>status</i> ,[<i>changeattr</i>],[<i>top</i>])
DELNFW	Delete a file (<i>lun</i> , <i>status</i> , <i>node</i> , <i>ident</i> , <i>ifile</i>)
EXENFW	Execute a file (<i>lun</i> , <i>status</i> , <i>node</i> , <i>ident</i> , <i>ifile</i>)

GETNFW	Read a single record (<i>lun, status, inchars, inarray, [seqno], [rac] [keyptr] [rop]</i>)
OPANFW	Open and append a sequential file (<i>lun, status, node, ident, ifile, ichar, len, [iblock]</i>)
OPMFW	Open and modify a sequential file (<i>lun, status, node, ident, ifile, ichar, len, [iblock]</i>)
OPRNF	Open and read a sequential file (<i>lun, status, node, ident, ifile, ichar, len, [iblock]</i>)
OPUNFW	Open and update a sequential file (<i>lun, status, node, ident, ifile, ichar, len, [iblock]</i>)
OPWNFW	Create, open, and write a sequential file (<i>lun, status, node, ident, ifile, ichar, len, [iblock]</i>)

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PRGNFW	Discard an open file (<i>lun status</i>)
PUYNFT	Write a record to a file (<i>lun status outchars outarray [seqno] [rac] [*eyptr] [rop]</i>)
RENNFW	Rename a file (<i>lun status node ident ofile nfile</i>)
SPLNFW	Open write and print a file (<i>lun status node ident ifile ichar len [block]</i>)
SUBNFW	Open write and execute a file (<i>lun status node ident ifile ichar len [block]</i>)

FORTRAN Task Control Calls

Before issuing a FORTRAN task control call, you must access the network by issuing the OPNNTW call. When you complete task control operations, you must deaccess the network by issuing the CLSNTW call.

Call	Function Format
ABONCW	Abort an executing task or cancel a scheduled task. (lun [status] ndsz ndnm passwd sz passwd ts* sz ts* nam [ident]) mask)
BACUSR	Build accounting information and the user ID portion of the connect block. ([status].[usersz user][accnosz accno])
RUNNCW	Execute an installed task in a remote node. (lun [status] ndsz ndnm passwd sz passwd ts* sz ts* nam [ident] [src] [rmg sz] [rmg rnt])

ERROR/COMPLETION CODES FOR FORTRAN, COBOL, AND BASIC-PLUS-2

Intertask Communication/FORTRAN Task Control Error Codes

- 1 The request was successful
- 2 The request was successful, but some data was lost
- 1 Required system resources are not available.
- 2 There is no established logical link on the specified LUN
- 3 The link was aborted or disconnected.
- 4 Data overrun; unstored data is lost.
- 5 Invalid buffer parameter, or data length exceeds 16. bytes
- 6 No data was found in the user's network data queue.
- 7 The network rejected an attempted connection.
- 8 A logical link has already been established on the specified LUN

- 9 The issuing task is not a network task; OPNNT was not executed successfully.
- 10 The user is attempting to access the network (via OPNNT) for a second time.
- 11 Transmission of an interrupt message was attempted before the last one finished.
- 12 The remote task rejected the connection.
- 13 A buffer is outside user address space or is not word aligned.
- 14 A second GNDNT has been attempted when one is already pending.
- 20 A RUNNCW was issued for which there was not enough dynamic memory on the remote node.
- 21 A RUNNCW or ABONCW was issued for a task that was not installed on the remote node.
- 22 A RUNNCW was issued with an invalid time parameter.
- 23 Either an ABONCW was issued for a task that was not active, or a RUNNCW without scheduling parameters was issued for a task that is already active.
- 24 There was a privilege violation on a RUNNCW or ABONCW attempt.

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- 25 An ABONCW was issued for a task that either was being loaded into or was exiting from the remote node
- 26 A RUNNCW was issued with an invalid UIC.
- 40 A directive error; the second word of the status block contains the actual directive error code (see the *RSX-11M/M-PLUS Executive Reference Manual*).

Remote File Access Error Codes

- 1 The request was successful.
- 1 The LUN on which the request was made is active.
- 2 The LUN on which the request was made is inactive
- 3 The remote system detected a data access protocol error. The second word of the I/O status block contains the DAP maccode and miccode values.
- 4 A network error was detected during the operation.

The second status word contains the intertask error code.

- 5 Invalid attributes have been specified in an open command.
- 6 A data overrun occurred on the user buffer
- 7 The requesting task and the File Access Listener (FAL) are out of sync
- 8 An invalid LUN was used in the file access call
- 9 A buffer allocation failure occurred
- 10 A directive error occurred
- 11 An illegal request was made.

DLX QIO FUNCTION CODES

Using build type macro. *label* QIO['W]\$ IO xxx, *parameters*

Using stack type macro QIO[W]\$\$ IO xxx, *parameters*

DLX requests conform to normal RSX-11 QIO standards. The QIO wait option is valid for all DLX function codes. Codes apply to both non-Ethernet and Ethernet devices, unless otherwise noted. These codes are defined in the DLXDFS macro in NETLIB MLB.

Code	Function/Format
IO.XOP	Open a line QIO\$ IO XOP, <i>lun</i> , <i>[efn]</i> , <i>[status]</i> <i>[ast]</i> , <i>p1</i> , <i>p2</i> <i>p3</i>
IO.XSC	Set characteristics (Ethernet only) QIO\$ IO.XSC, <i>lun</i> , <i>[efn]</i> , <i>[status]</i> , <i>[ast]</i> , <i>p1</i> , <i>p2</i>
IO.XGC	Get characteristics (Ethernet only) QIO\$ IO XGC, <i>lun</i> , <i>[efn]</i> , <i>[status]</i> , <i>[ast]</i> , <i>p1</i> , <i>p2</i>

IO XIN	Initialize the line (non-Ethernet only)
	QIO\$ IO XIN <i>lun</i> [<i>etn</i>] [<i>status</i>] [<i>ast</i>] <i>p1</i>
IO XTM	Transmit a message on the line
	QIO\$ IO XTM <i>lun</i> [<i>etn</i>] [<i>status</i>] [<i>ast</i>] <i>p1</i> <i>p2</i> [<i>p3</i> <i>p4</i>]
IO XRC	Receive a message on the line
	QIO\$ IO XRC <i>lun</i> [<i>etn</i>] [<i>status</i>] [<i>ast</i>] <i>p1</i> <i>p2</i> [<i>p3</i> <i>p4</i>]
IO XHG	Hang up the line (non-Ethernet only)
	QIO\$ IO XHG <i>lun</i> [<i>etn</i>] [<i>status</i>] [<i>ast</i>]
IO XCL	Close the line
	QIO\$ IO XCL <i>lun</i> [<i>etn</i>] [<i>status</i>] [<i>ast</i>]

DLX ERROR/COMPLETION STATUS RETURNS

Symbol Name	Decimal Value	Octal Value	Meaning
IS SUC	1	1	The request is successful
IE NSF	(-26)	177746	Either you have entered an invalid time specification for that or the specified time is not in the system
IE TMO	(-95)	177631	A timeout condition has occurred
IE NLN	(-37)	177735	No line has been opened within the specified limit
IE ALN	(-34)	177730	The specified limit is already in use
IE RSU	(-17)	177750	The specified line is already in use
IE PRI	(-16)	177751	The specified line is not available for use by DLX
IE ABO	(-15)	177751	The function has been aborted

IE.DAO	(-13.)	177763	A message is received before a receive QIO is issued, or the user buffer is too small to receive all of the data.
IE.SPC	(-6.)	177772	The transmit buffer is too large (applies only to PDP-11/44 or PDP-11/70 with extended memory).
IE.VER	(-4.)	177774	An error has occurred on the line.
			The second word of the I/O status block contains the error code. Possible error codes are:
			100361 DDCMP transmit error threshold exceeded
			100362 Operation aborted
			100363 Message received without receive pending
			100364 Start received
			100366 Line physically disconnected
			100370 General error
			100372 MOP message received
			100374 DDCMP reply timeout threshold exceeded
			100376 DDCMP receive error threshold exceeded
IE.DNR	(-3.)	177775	The hardware device was not ready. The line was hung up and has not been reinitialized.
IE.IFC	(-2.)	177776	The LUN is not assigned to NX.

(continued on next page)

IO.XSC C.STAT Error Codes for the Ethernet

Error Code	Meaning
100001 CE.UDF	Undefined function
100003 CE.RTL	Request too large
100004 CE.RTS	Request too small
100007 CE.MCE	Multicast address already enabled
100010 CE.RES	Resource allocation failure
100011 CE.PCN	Protocol usage conflict

100012
CE.ACN

Address usage conflicts

100013
CE.IUN

Illegal use of multicast address

100014
CE.NMA

Not a multicast address

DECnet-RSX-SPECIFIC OBJECT TYPE CODES

Object Type		Process Type
Octal	Decimal	
000	000	General task, user process
001-016	001-014	Reserved for DECnet use
017	015	RSX-11M Remote Task Control utility (TCL) - Version 2
020	016	TLK utility (LSN)
021	017	File Access Listener (FAL/DAP) - Version 4 and later
022	018	RSX-11S Host Loader utility (HLD)
023	019	Network Information and Control Exchange (NICE)
024-026	020-022	Reserved for DECnet use
027	023	Network command terminal handler - host side (RMHACP)

030	024	Reserved for DECnet use
031	025	Loopback mirror (MIR)
032	026	Event receiver (EVR)
033-076	027-062	Reserved for DECnet use
077	063	DECnet test tool (DTR)
100-177	064-127	Reserved for DECnet control
200-377	128-255	Reserved for customer use